

# Claims

[c1]

1. A metal halide lamp comprised of a ceramic discharge chamber containing an ionizable fill, said fill comprising Hg, and halides (H) of Na, Tl, alkaline earth metal, and  $0 < \text{rare earth element (RE)} < 15\%$  as a molar fraction of halides.

[c2]

2. The metal halide lamp of claim 1 wherein said fill further comprises Cs halide.

[c3]

3. The metal halide lamp of claim 2 comprising molar fraction of halides in the following ranges:

	%
REH	>0 - 15
CsH	>0-15
NaH	45 - 86
TlH	2 - 5
CaH	15 - 45

[c4]

4. The lamp of claim 1 wherein said rare earth element is selected from Ho, Dy, Tm, and mixtures thereof.

[c5]

5. The lamp of claim 4 wherein said rare earth element is Ho.

[c6]

6. The lamp of claim 1 having a power greater than 200 watts.

[c7]

7. The lamp of claim 1 having a power between about 250 and 400 watts.

[c8]

8. The lamp of claim 4 wherein said ionizable fill includes only a single rare earth element.

[c9]

9. The lamp of claim 1 having a color temperature between about 2500 and 4500 ° K.

[c10]

10. The lamp of claim 9 having a color temperature between about 2800 and 3200 ° K.

[c11]

11. The lamp of claim 1 having an Ra greater than 80.

[c12]

12. The lamp of claim 1 wherein said halide is selected from chlorine, bromine,

iodine and mixtures thereof.

[c13] 13.The lamp of claim 1 wherein said alkaline earth metal comprises calcium.

[c14] 14.The lamp of claim 1 having a molar ratio wherein:  
 $2 \leq \text{NaH}/(\text{TIH} + \text{REH}_3) \leq 10$ .

[c15] 15.The lamp of claim 13 wherein:  
 $15\% \leq \text{CaH}/\text{total} < 45\%$ .

[c16] 16.The lamp of claim 1 wherein:  
 $0.85 < \text{power factor} < 0.90$ .

[c17] 17.The lamp of claim 1 wherein:  
 $80 < V_{op} < 110$  volts vertical

[c18] 18.The lamp of claim 17 wherein:  
 $90 < V_{op} < 120$  volts horizontal

[c19] 19.The lamp of claim 1 wherein:  
 $2\% \leq \text{TIH}/\text{total} \leq 5\%$ .

[c20] 20.The lamp of claim 1 wherein:  
 $4\% \leq \text{REH} \leq 8\%$ .

[c21] 21.The lamp of claim 1 wherein:  
 $45\% \leq \text{NaH} \leq 86\%$ .

[c22] 22.A metal halide lamp comprised of a ceramic discharge chamber containing an ionizable fill, said fill comprising mercury, and halides of sodium, thallium, an alkaline earth metal and  $0\% < \text{at least 3 rare earth elements} < 15\%$ .

[c23] 23.A metal halide lamp comprised of a ceramic discharge chamber containing an ionizable fill, said fill comprising mercury, and halides (H) of sodium, thallium, an alkaline earth metal, at least one rare earth element and cesium.

[c24] 24.A dose for a metal halide lamp comprised of mercury, and halides (H) of sodium, thallium, an alkaline earth metal, at least three rare earth elements, and cesium.